

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in Grinding Lens Blanks

We, ABRASIVE DEVELOPMENTS LIMITED, a British Company of, High Street, Henley-in-Arden, Warwickshire, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention relates to the grinding of lens blanks. Heretofore glass or like lens blanks, which are roughly of the shape of the lens to be produced, have been ground such as by a rotary tool action by direct contact of the grinding tool and lens, and this invention has for its object to provide a quick grinding action for rough shaping of a lens blank preparatory to a finishing grinding action by the present direct contact grinding action.

According to the present invention, abrasive particles in a body of water or other liquid are projected from the body of a gun onto a lens blank, the abrasive mixture being projected on the lens blank with the assistance of air under pressure supplied to the nozzle of the gun through which the abrasive mixture is projected.

The abrasive particles are preferably aluminous oxide or silicon carbide of from 60 to 120 mesh and the abrasive is mixed with water, which may be in the proportion of 40 per cent abrasive and 60 per cent water by weight. This pre-mixed body of water and abrasive is supplied to the body of a gun by a pump under a pressure of from 20 to 60 p.s.i. The projection of mixture from the gun is accelerated by air under pressure of 80 to 100 p.s.i. supplied to the nozzle with a volume of 40 to 60 cubic feet passing through the gun per minute.

The gun is held at a predetermined distance from the lens blank to be treated, which may be two to six inches, and traversed

thereover to effect the grinding action. The gun is mounted on guides or otherwise constrained in its traverse movement to be maintained at a predetermined distance from the face of the lens blank and follows a path suitable for the surface shape of the lens to be ground. Thus an even grinding action is maintained over the surface of the lens. This grinding process is particularly suitable for the preliminary grinding of a lens blank which prepares the blank and reduces the time required for a final grinding process by the normal means by contact grinding tools at present in use.

In order that the invention may be clearly understood, and readily carried into effect, reference may be had to the accompanying drawings in which:—

Figure 1 is a diagrammatic view of means for grinding a lens blank.

Figure 2 is a plan of the lens holder shown by Figure 1.

Figure 3 shows means for grinding another type of lens blank, and

Figure 4 is a plan of the lens holder shown by Figure 3.

The lens blank A for grinding one type of lens is mounted on a cast iron head 1 (see Figures 1 and 2) which is rotatably mounted and on which it is fixed by pitch in known manner and a spray gun 2 is mounted to reciprocate on a guide 3 which lies over the transverse centre line 4 of the head 1. The guide may have for instance a curved slot 5a. Thus as the head 1 rotates, the spray gun is reciprocated to give an even grinding action on the surface of the blank A.

A number of lenses may be ground simultaneously and a number of guns in a gang may be used.

The water in the pre-mixed body ensures a delicate and rapid grinding action. For grinding another type of lens blank (see

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Figures 3 and 4), the blank B is mounted on a lens holder 5 and the spray gun 2 is mounted to reciprocate in a slot 6 of a guide 7, the slot being curved to suit the curvature of the lens. In this instance the lens is curved in one direction only and the gun reciprocates in such direction. The holder 5 or the guide 7 is reciprocated longitudinally of the blank or both may be so reciprocated.

WHAT WE CLAIM IS:—

1. A process for grinding lens blanks in which abrasive particles in a body of water or other liquid are projected from the body of a gun onto a lens blank, the abrasive mixture being projected on the lens blank with the assistance of air under pressure supplied to the nozzle of the gun through which the abrasive mixture is projected.
2. A process for grinding lens blanks, as set forth in Claim 1, in which the abrasive

particles in a body of water are fed to the gun body under pressure by a pump, the rate of projection from the gun being accelerated by air under pressure fed to the nozzle of the gun.

3. A process for grinding lens blanks as set forth in Claim 1 or Claim 2, in which a discharge gun and the lens blank have a relative movement for applying an even grinding action on the lens blank.

4. A process of grinding a lens blank to shape the surface substantially as herein set forth and illustrated.

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PROVISIONAL SPECIFICATION

Improvements in Grinding or Polishing Glass Lenses or the like

We, ABRASIVE DEVELOPMENTS LIMITED, a British Company of, High Street, Henley-in-Arden, Warwickshire, do hereby declare this invention to be described in the following statement:—

This invention relates to the grinding or polishing of glass lenses or the like. Heretofore glass lenses have been ground such as by a rotary tool action, and this invention has for its object a more efficient and quicker grinding or polishing action.

According to the present invention, abrasive particles in a body of water or liquid are projected from the body of a gun on a lens blank, the abrasive mixture being projected on the lens with the assistance of air under pressure supplied to the nozzle of a gun through which the abrasive mixture is projected.

The abrasive particles are preferably aluminous oxide or silicon carbide of from 60 to 120 mesh and is mixed with water, which may be in the proportion of 40 per cent abrasive and 60 per cent water by weight. This pre-mixed body of water and abrasive is supplied to the nozzle of a gun by a pump under a pressure of from 20 to 60 p.s.i. The projection of mixture is accelerated from the nozzle of the gun

by air under pressure of 80 to 100 p.s.i. with a volume of 40 to 60 cubic feet passing through the gun per minute.

The gun is held at a predetermined distance from the lens blank to be treated, which may be two to six inches, and traversed thereover to effect the grinding or polishing action. The gun is mounted on guides or otherwise constrained in its traverse movement to be maintained at an equal distance from the face of the lens and follows the surface shape of the lens to be ground. Thus an even grinding action is maintained over the surface of the lens. A lens blank or a partly shaped blank may be treated.

A number of lenses may be ground simultaneously and a number of guns may be used.

The water in the pre-mixed body ensures a delicate and rapid grinding action and gives the necessary polished surface.

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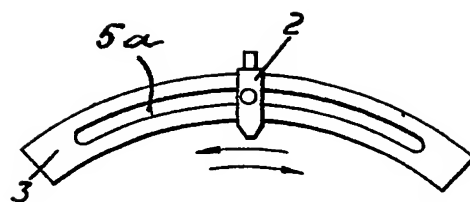


FIG. 1.

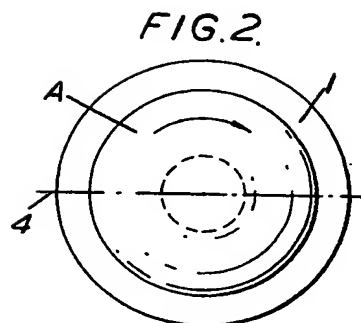
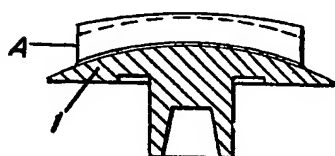


FIG. 2.

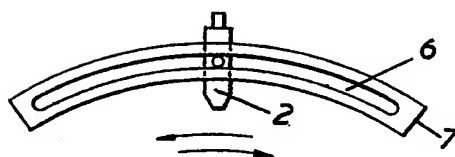


FIG. 3.

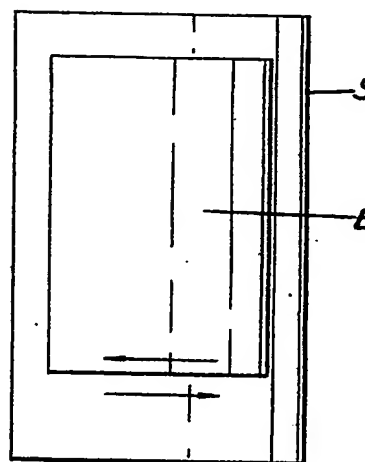


FIG. 4.

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